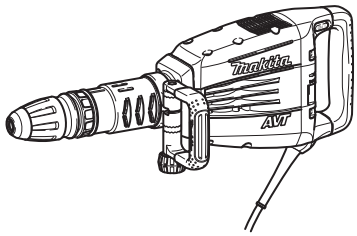
TECHNICAL INFORMATION

Model No. ► HM1214C

Description ► Demolition Hammer



Dimensions: mm (")	
Length (L)	700 (27-1/2)
Width (W)	129 (5-1/8)
Height (H)	265 (10-3/8)

CONCEPT AND MAIN APPLICATIONS

Model HM1214C is a 10kg-class demolition hammer adapted for SDS-MAX bits.
The main features are as follows:

- AVT (Active dynamic vibration absorber)
- for reduced vibration during chipping
  Suppression of motor speed during no-load
- for reduced vibration when idling
- In-line tool design optimum for downward vertical applications
  High work efficiency

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	15	50/60	1,510	700	1,600
120	14	50/60	---	700	1,600
220	7.8	50/60	1,510	750	1,800
230	7.8	50/60	1,510	750	1,800
240	7.8	50/60	1,510	750	1,800

Impacts per min: min-1=ipm		950 - 1,900
Shank type		Adapted for SDS-MAX bits
Shank diameter: mm (")		18 (11/16)
Vibration absorption	AVT (Active dynamic vibration absorber)	Yes
	Vibration absorbing handle	No
Electronic control	Variable speed control by dial	Yes
	Soft start	Yes
	Constant speed control	Yes
	Suppression of motor speed during no-load	Yes
Double insulation		Yes
Power supply cord: m (ft)		Europe, Korea, Cyprus: 4.0 (13.1) Brazil: 2.0 (6.6) Other countries: 5.0 (16.4)
Net weight: kg (lbs)		11.7 (25.8)
Weight according to EPTA-Procedure 01/2003: kg (lbs)		12.3 (27.1)

► Standard equipment

Side handle (D-shaped) 1
Bit grease 1
Bull point 1
Plastic carrying 1
Cleaning cloth 1

Note: The standard equipment for the tool shown above may vary by country.

► Optional accessories

Bull points	Grooving chisel	Grease vessel (containing 30g hammer grease)
Cold chisels	Clay spade	Plastic carrying case
Scaling chisels	Bushing tool	Safety goggles
Scaling chisel (for Tile)	Rammer	Hammer service kit

► Repair

CAUTION: Remove the hammer bit from the machine and disconnect the Machine from power source for safety before repair/ maintenance in accordance with the instruction manual!

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R003	Retaining ring S pliers ST-2N	Removing Ring spring 26
1R212	Tip for Retaining Ring Pliers	Attaching to 1R003, when removing Ring spring 26
1R023	Pipe Ring (for Arbor press)	Removing Ball bearing
1R024	Press Tool (for Arbor press)	Pressing down Slide sleeve for easy removing of Ring spring 43
1R031	Bearing setting pipe 28-20.2	Assembling Helical gear 52
1R045	Gear extractor (large)	Removing Counter shaft
1R346	Center Attachment	Attaching to 1R045, when removing Counter shaft
1R165	Gear extractor (large)	Supporting Crank shaft for assembling Helical gear 52
1R214	Taper sleeve	Fitting Fluoride ring 28 on Impact bolt
1R217	Ring 22	Removing / Assembling Crank shaft
1R228	1/4” Hex Shank bit for M4	Removing M4 Hex socket head bolts
1R230	1/4” Hex Shank bit for M6	Removing M6 Hex socket head bolts
1R231	1/4” Hex Shank bit for M8	Removing M8 Hex socket head bolts
1R246	Round Bar for Arbor 18-100	Removing M8 Hex socket head bolts
1R247	Round Bar for Arbor 20-100	Removing Ball bearing 6203LLB
1R263	Bearing Extractor	Separating Cylinder 40 and Motor housing from Crank housing
1R269	Bearing Extractor (small)	Removing Ball bearing 6000DDW from Commutator end of Armature
1R291	Retaining ring S & R pliers	Removing Retaining ring S-8 from Counter shaft
1R306	Ring spring removing Jig	Disassembling AVT mechanism
1R363	Ring spring removing tool	Pressing down Flat washer 30 for easy removing Ring spring 26

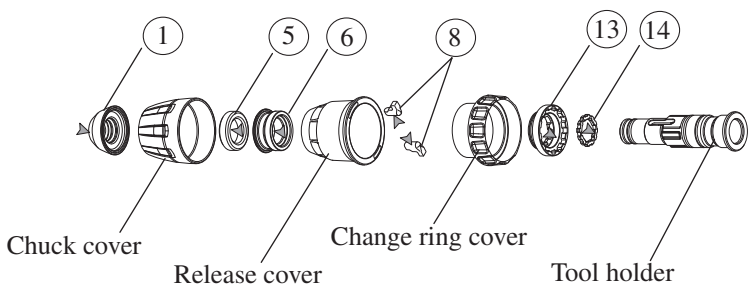
[2] LUBRICATIONS

[2] - 1 Tool holder section

Apply **Makita grease N.No.2** to the following portions designated with the **gray triangle** to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate
(1)	Tool holder cap	Rip portion
(5)	Rubber ring 30	Inside where Tool holder contacts
(6)	Chuck ring	Inside where (8) Tool retainers contact
(8)	Tool retainer	The belly portion where Hammer bit contacts
(13)	Change ring	Inside which (14) Lock ring accepts
(14)	Rock ring	Its inside where Tool holder contacts

Fig. 1A **Tool holder section**



Repair

[2] LUBRICATIONS
[2]-2 Hammer section

Apply Makita grease R.No.00 to the following portions designated with the black triangle to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate
⑱	Barrel complete	ⓐ Inside of Tool holder guide which accepts Tool holder
		ⓑ Inside of Barrel complete for smooth moving of Weight guide of AVT.
㉔	X ring 21	Out side for smooth moving of Impact bolt in Tool holder
㉕	Fluoride ring 28	
㉟	Cylinder 40	ⓐ Apply approx. 10g grease for smooth moving of Striker and Impact bolt
		ⓑ Apply approx. 10g grease for smooth moving of Striker and Piston
㊹	Pin 12	Drum portion for smooth moving of Connecting rod

Fig. 1B

Barrel and AVT mechanism

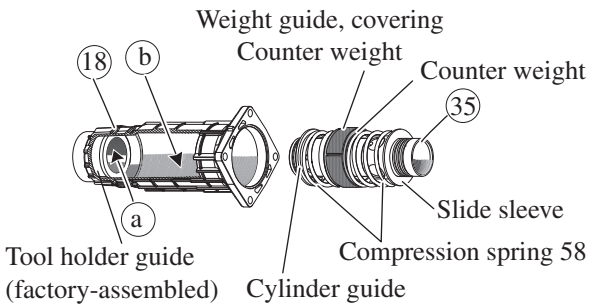
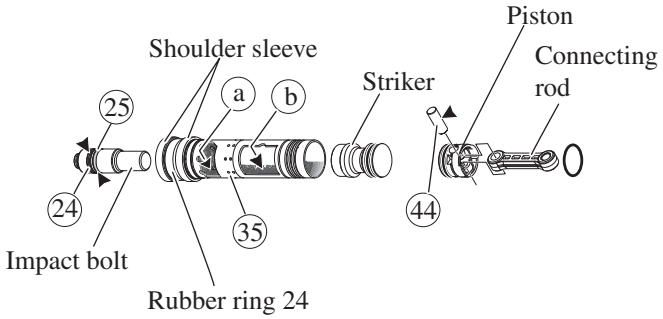


Fig. 1C

Cylinder section



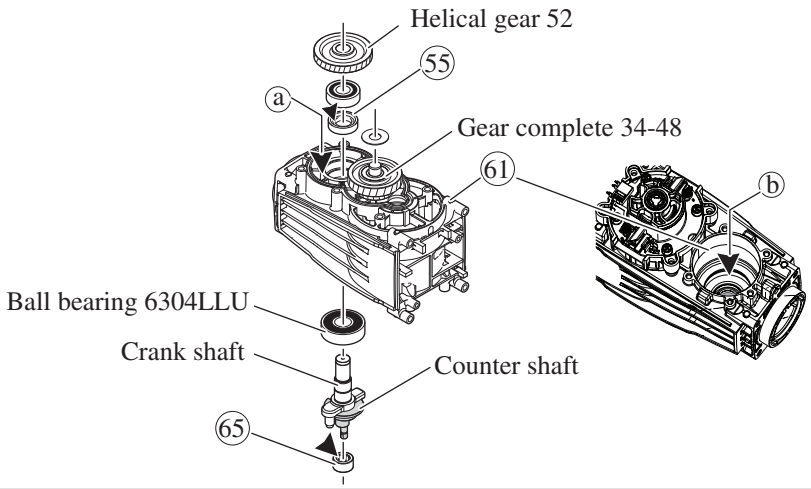
[2]-3 Gear and Crank section

Apply **Makita grease N.No.1** and Makita grease R.No.00 to the following portions designated with the black triangle to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate	
㊺	Oil seal 20	Lip portion	a little of Makita grease R No. 00
㊶	Crank housing complete	ⓐ Gear room for smooth engaging of Gears	**approx. 50g Makita grease N.No.1**
		ⓑ Crank room	approx. 60g Makita grease R No. 00
㊺	Needle bearing 1613	Needle portion where Counter shaft is accepted	a little of Makita grease R No. 00

Fig. 1D

Gear and Crank section



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-1. Chuck section

DISASSEMBLING

Remove Handle section and Controller cover so that you can stand the machine for easy repairing of the section except Motor and Crank section. See **Fig. 2**.
Chuck section can be disassembled as illustrated in **Figs. 3 and 4**.

Fig. 2

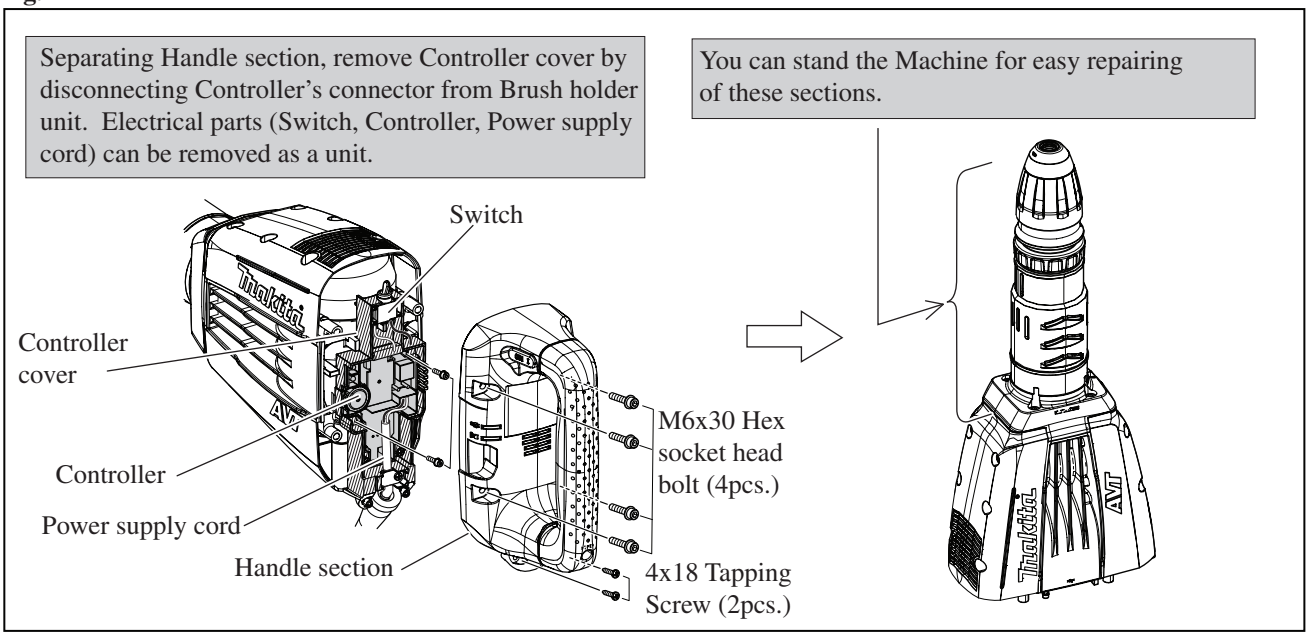


Fig. 3

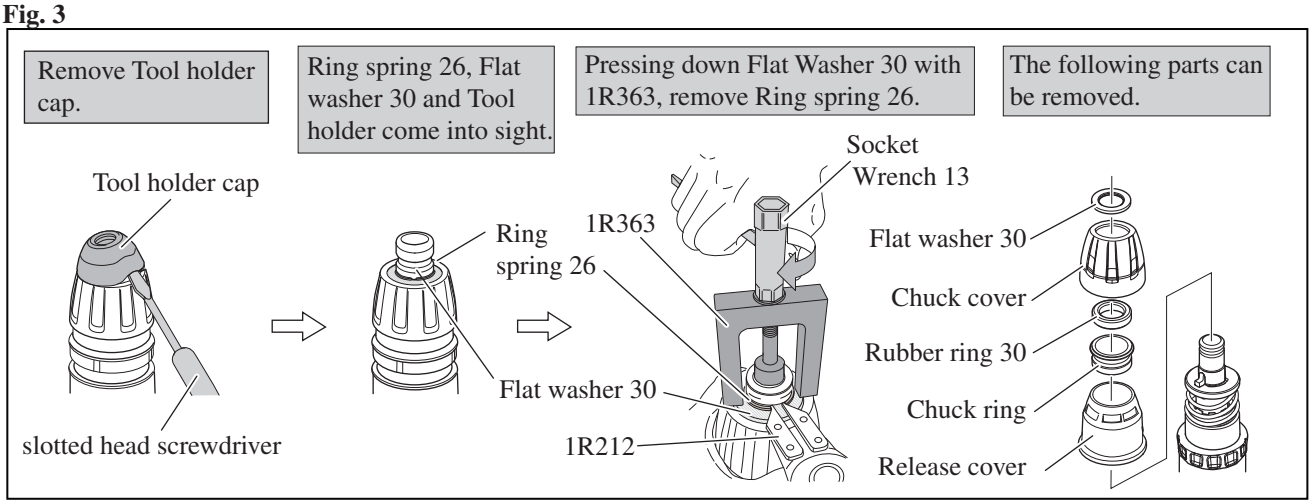
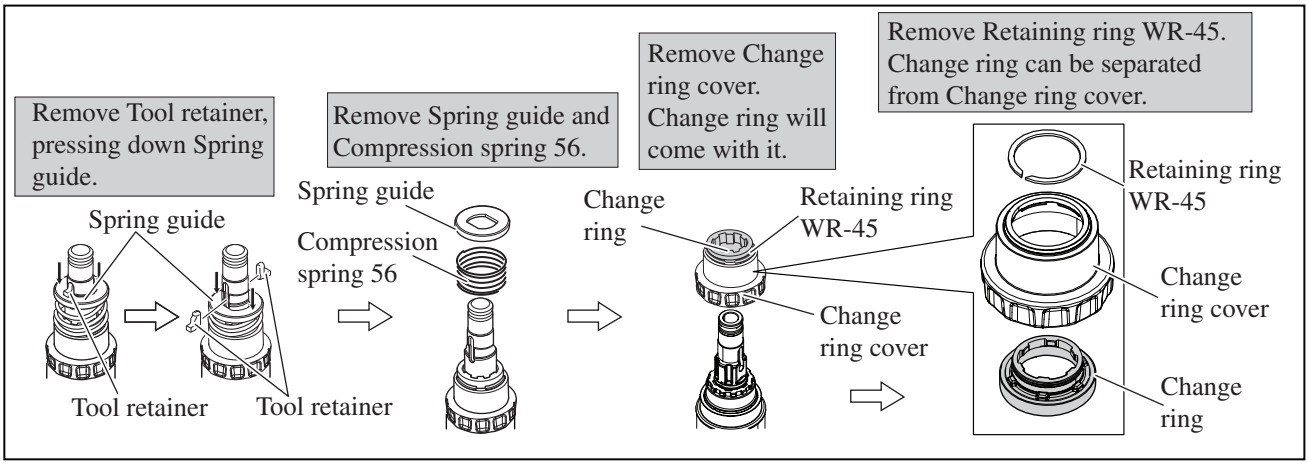


Fig. 4



Repair

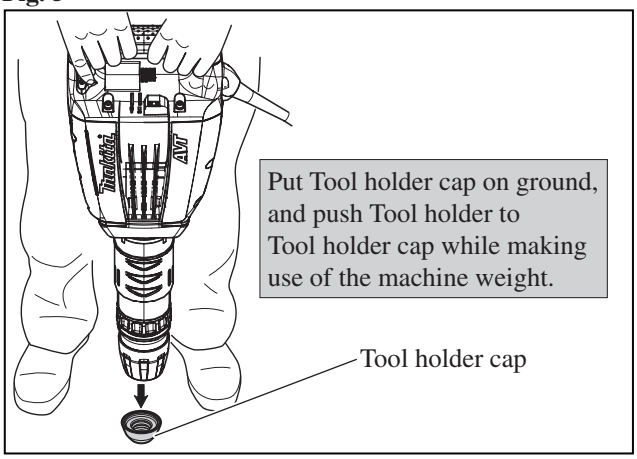
[3] DISASSEMBLY/ASSEMBLY

[3]-1. Chuck section

ASSEMBLING

(1) Do the reverse step of Disassembly. Refer to **Figs. 4and 3**. However, assemble Handle section before mounting Tool holder cap.
(2) Assemble Tool holder cap as illustrated in **Fig.5**.

Fig. 5



[3]-2. Barrel section

DISASSEMBLING

(1) Remove Handle section and Controller cover to hold the machine upright. (**Fig. 2**)
(2) Separate Barrel section from Crank housing complete, and remove Impact bolt from Barrel section. (**Fig. 6**)
(3) Disassemble Cylinder and Striker as illustrated in **Figs. 7 and 8.**

Fig. 6

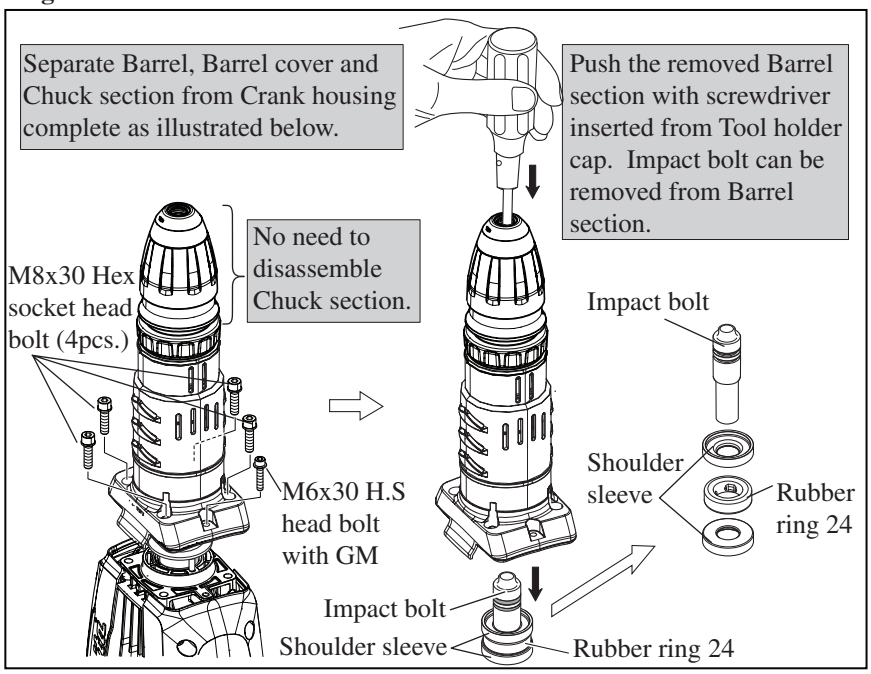
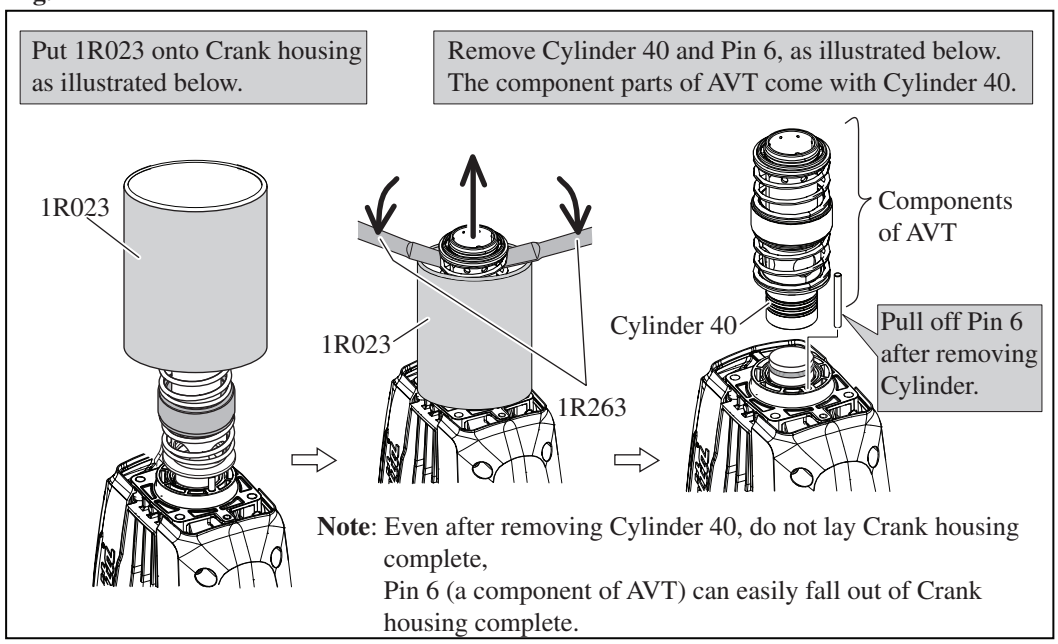
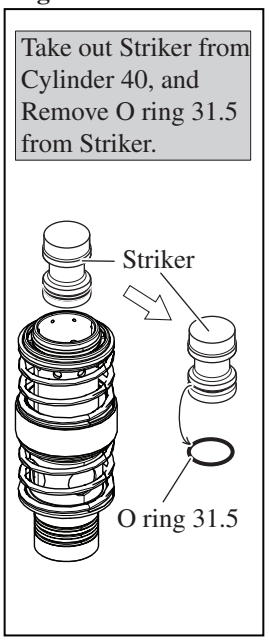


Fig. 7



Note: Even after removing Cylinder 40, do not lay Crank housing complete,
Pin 6 (a component of AVT) can easily fall out of Crank housing complete.

Fig. 8



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-2. Barrel section (cont.)

DISASSEMBLING

(4) The components of AVT can be removed from Cylinder 40 (Figs. 9

Fig. 9

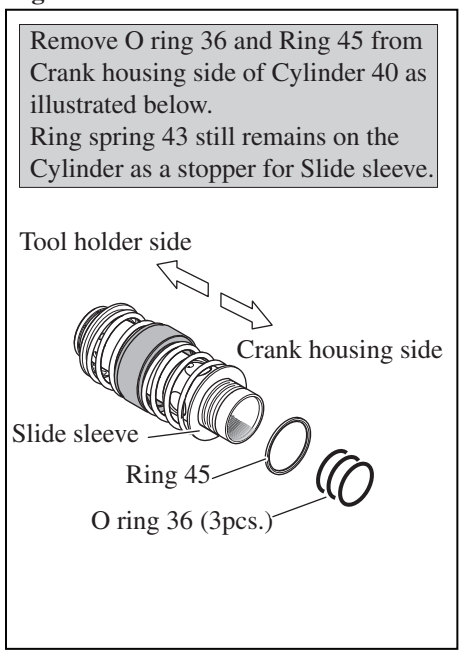


Fig. 10

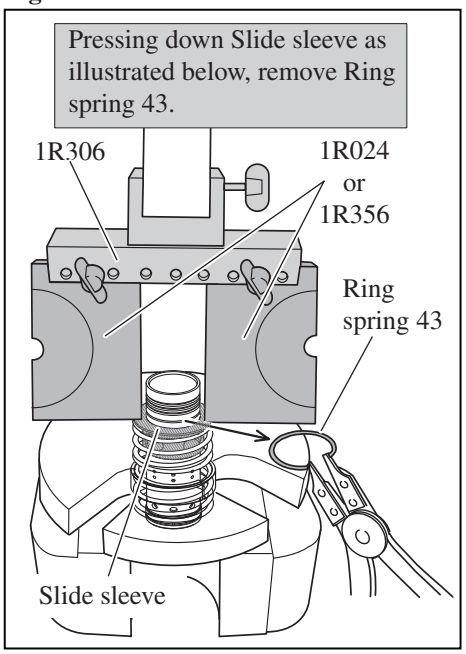
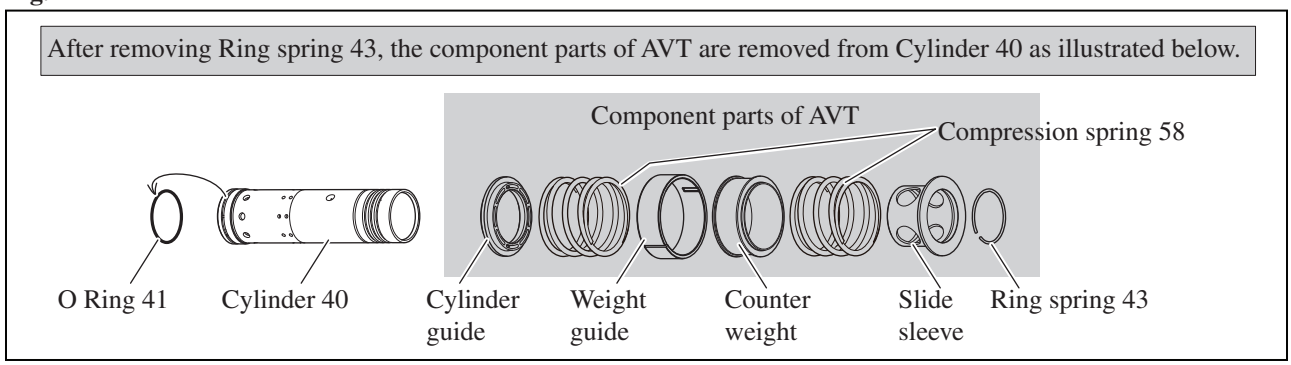


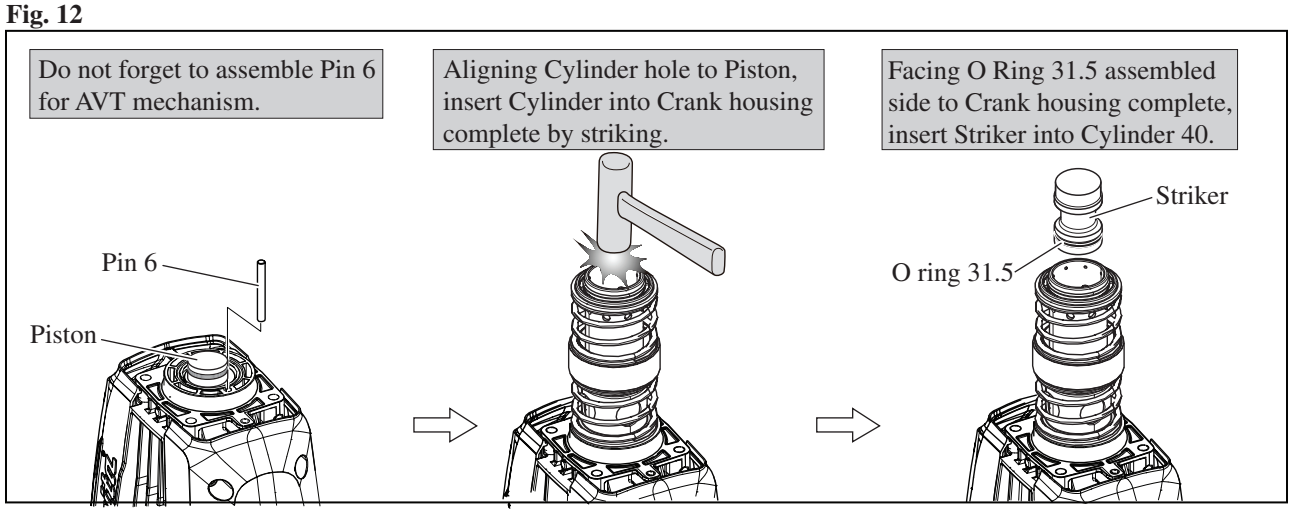
Fig. 11



ASSEMBLING

(1) Assemble O ring 41 to Cylinder 40. And assemble the component parts of AVT. (**Fig. 11**)
(2) Secure the component parts of AVT with Ring spring 43. (**Fig. 10**)
(3) Assemble Ring 45 and 3 pcs. of O ring 36 to Cylinder 40. (**Fig. 9**) The assembling of Cylinder section is finished. And mount it to Crank housing as illustrated in **Fig. 12**.

Fig. 12



Repair

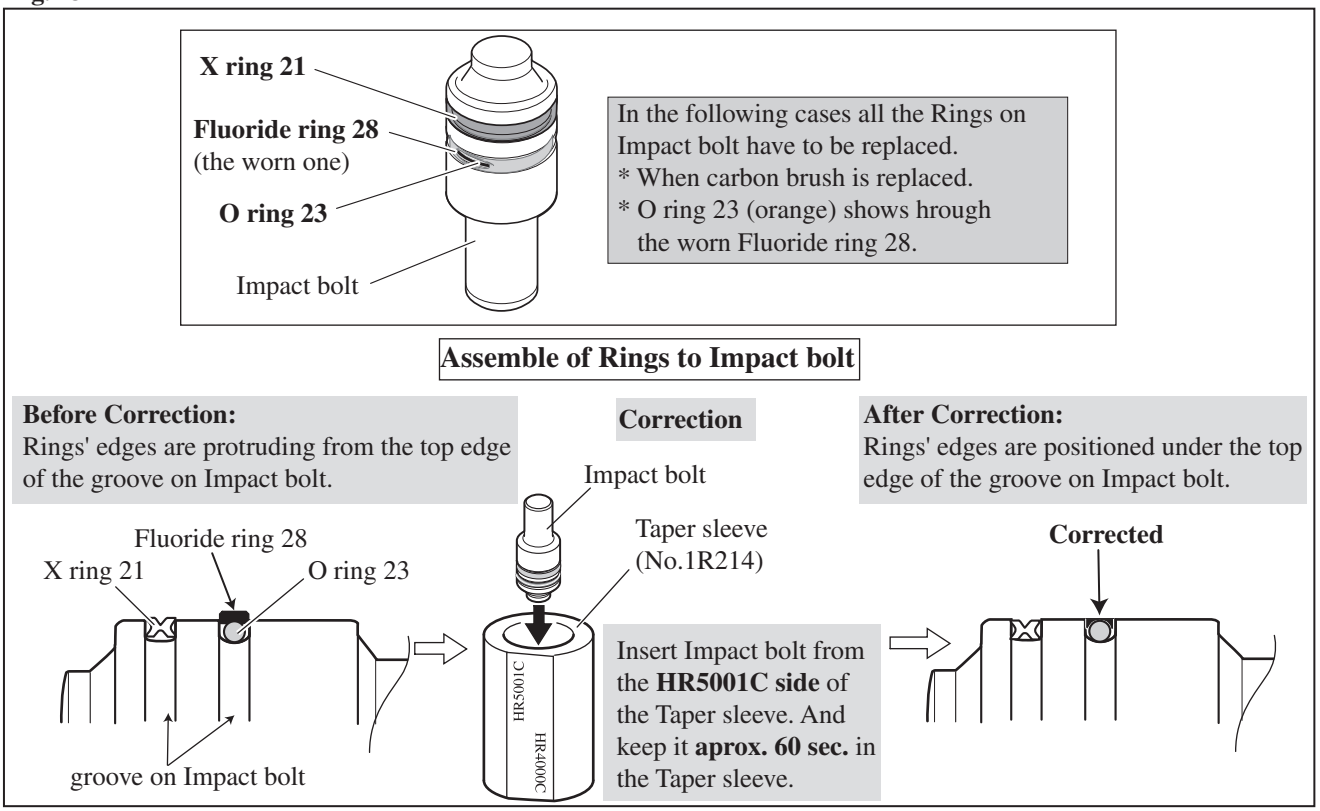
[3] DISASSEMBLY/ASSEMBLY

[3]-2. Barrel Section (cont.)

ASSEMBLING

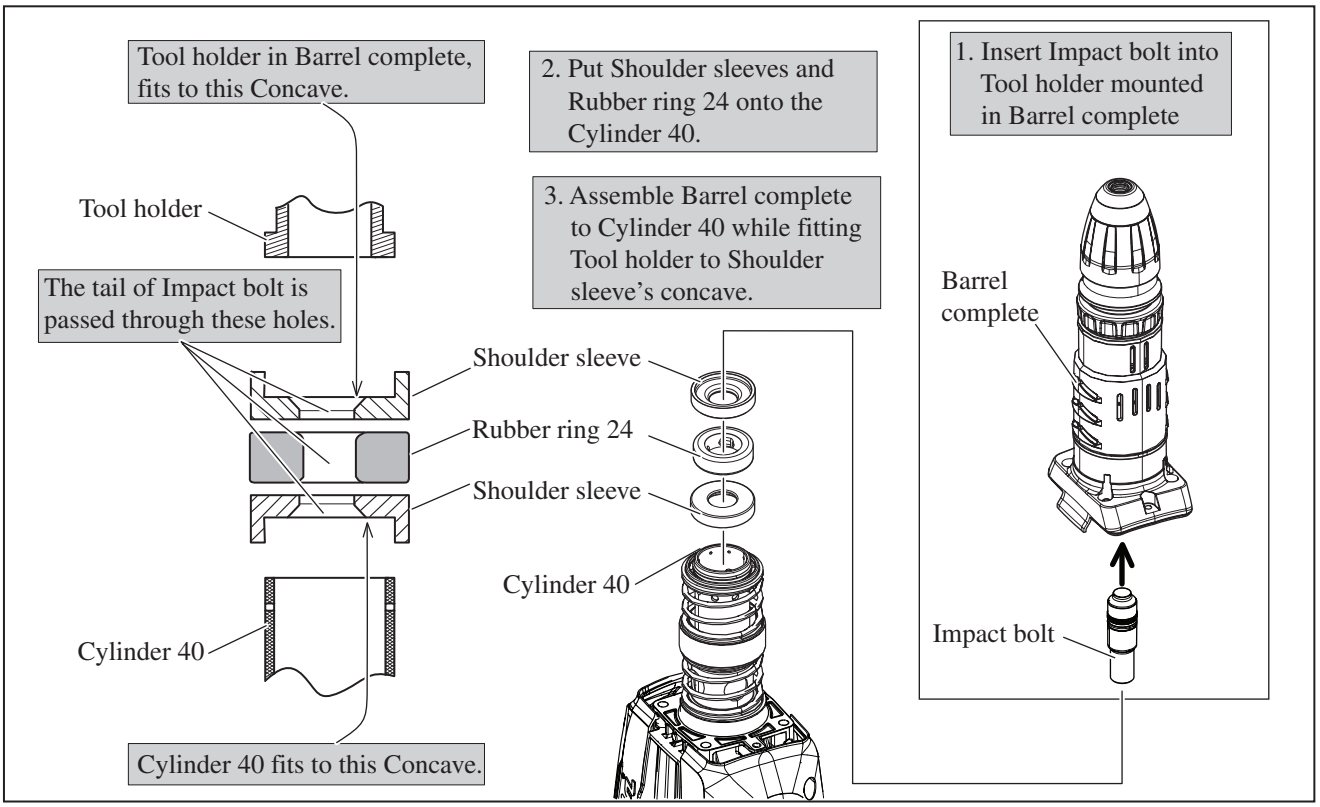
(4) If the wearing away on Fluoride ring 28 is recognized in the step of **Fig. 6**, all the Rings on Impact bolt have to be replaced as illustrated in **Fig. 13**.

Fig. 13



(4) Assemble Barrel complete to Cylinder 40 as illustrated in **Fig. 14**.

Fig. 14



(5) Secure the Barrel complete with four M8x30 Hex socket head bolts and one M6x30 Hex socket head bolt together with Barrel cover. Refer to the **left** illustration in **Fig. 6**.

Repair

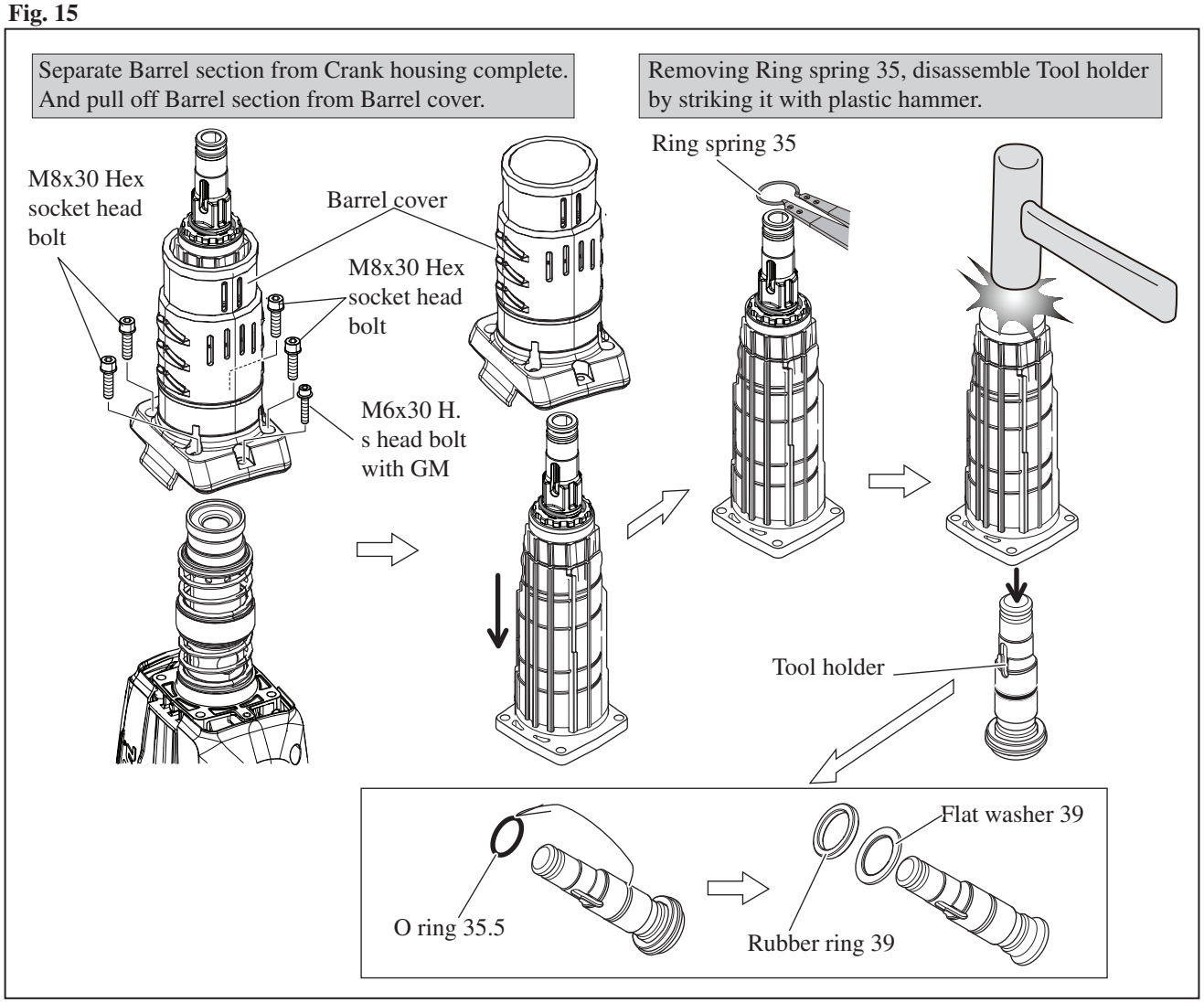
[3] DISASSEMBLY/ASSEMBLY

[3]-3. Tool holder section

DISASSEMBLING

(1) Disassemble Chuck section as illustrated in **Figs. 3 and 4**.
(2) Disassemble Tool holder as illustrated in **Fig. 15**.

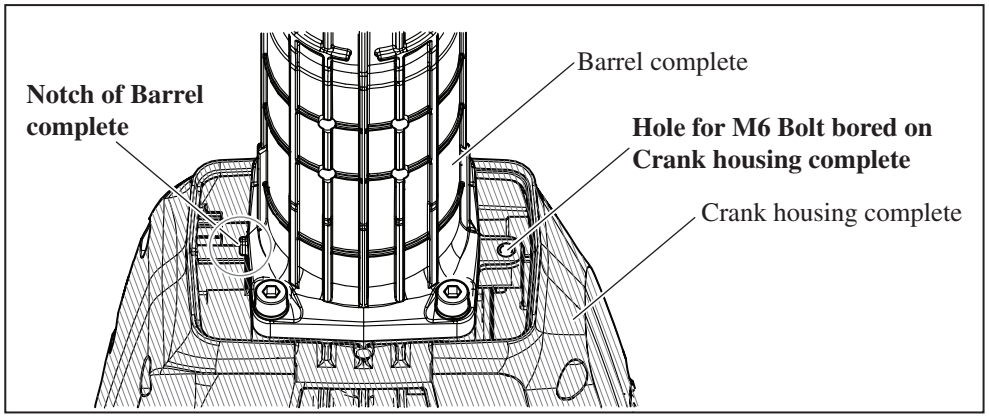
Fig. 15



ASSEMBLING

Barrel complete has to be assembled so that **the notch is located on the opposite side of M6 bolt hole**. (**Fig. 16**)

Fig. 16



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Piston, Crank section

DISASSEMBLING

(1) Remove Handle section and Controller cover to hold the machine upright. (**Fig. 2**)
(2) Separate Barrel section from Crank housing complete (the **left illustration in Fig. 6**)
(3) Disassemble Cylinder section (**Fig. 7**)
(4) For repairing Piston & Crank section, Motor section has to be separated from Crank housing complete.
Separate Motor housing from Crank housing complete in order of **Figs. 17 and 18**.

Fig. 17

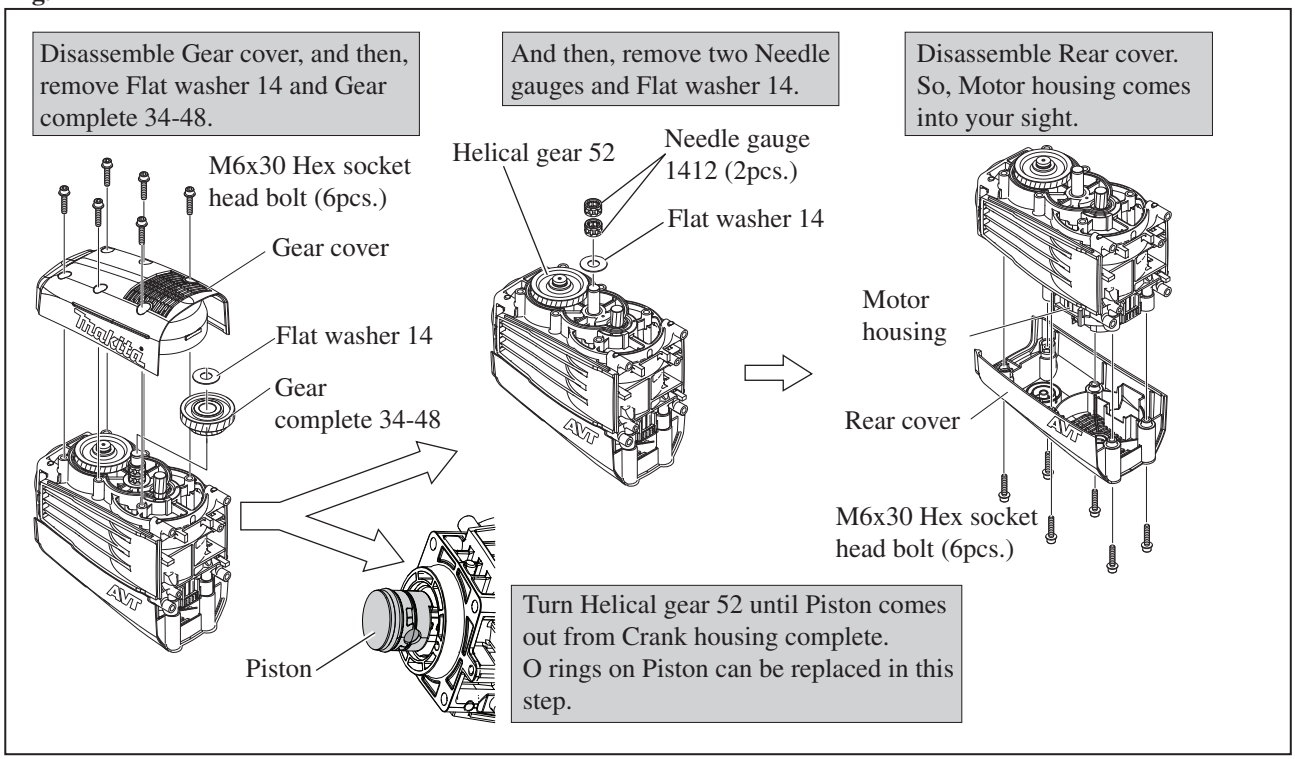
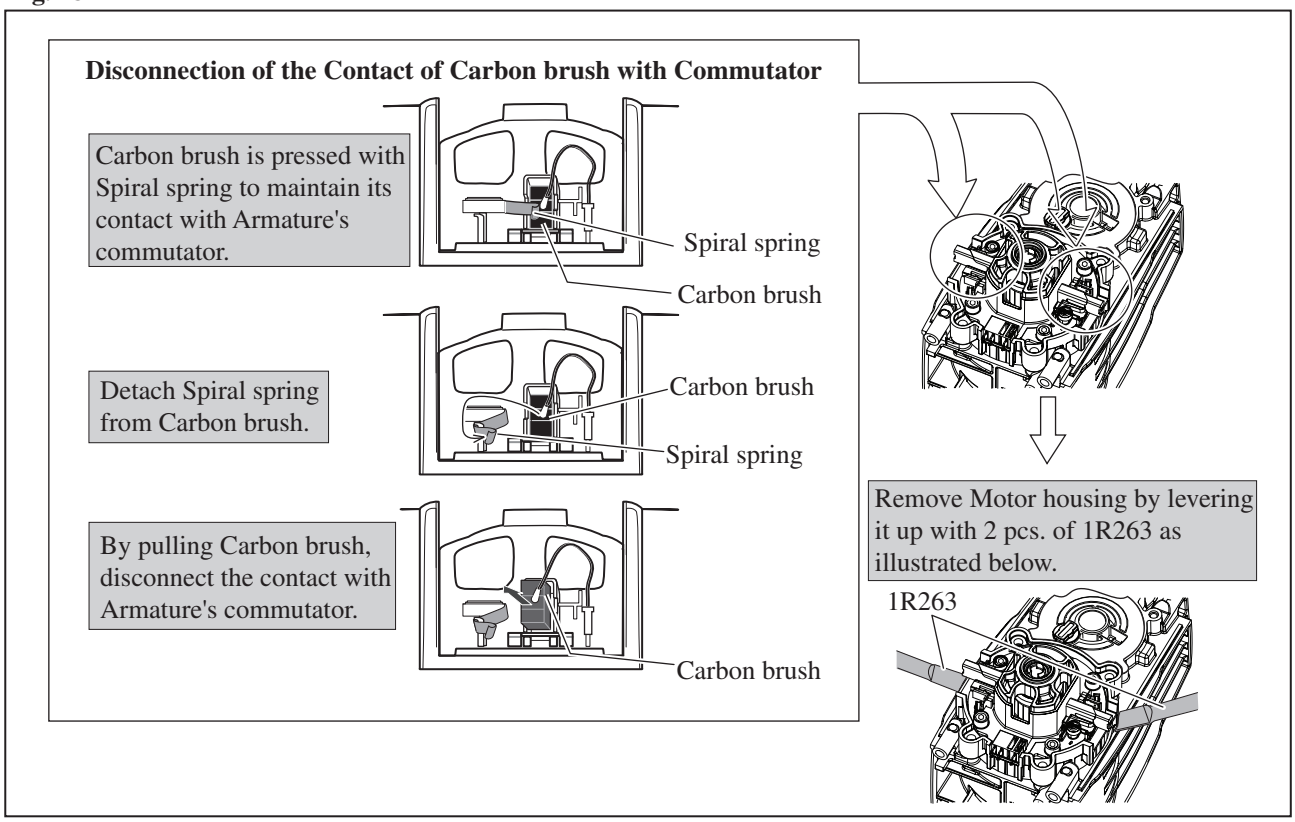


Fig. 18



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Crank housing section (cont.)

DISASSEMBLING

(5) Disassemble Bearing box section in order of **Figs. 19 to 24**.

Fig. 19

Even after removing Motor housing, Armature still remains in Crank housing complete. Disassemble Armature by striking the edge of Crank housing complete as illustrated below.

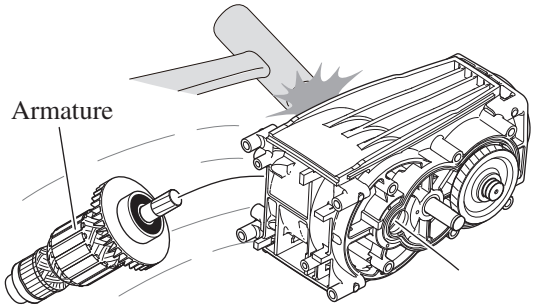


Fig. 20

Pull off Filter case from Bearing box after removing Filter case cover.

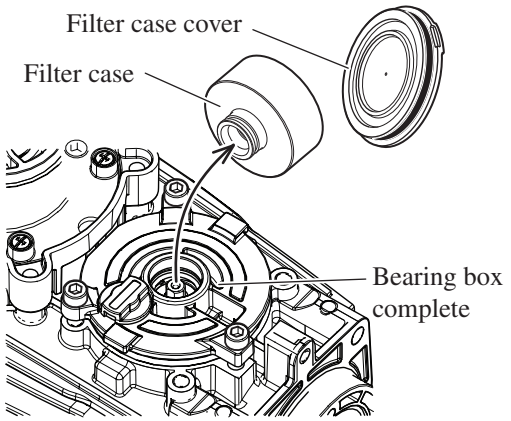


Fig. 21

After unscrewing M6x25 Hex Socket head bolts, remove Bearing box by twisting two slotted head screwdrivers inserted between Crank housing complete and Bearing box complete.

Remove Pin 8 that functions for AVT in combination with Pin 6. Pay attention not to lose Pin 8.

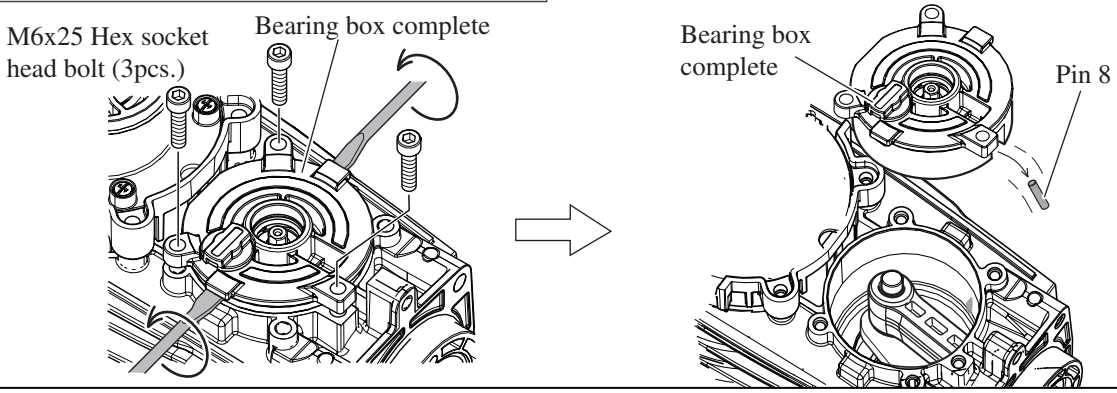
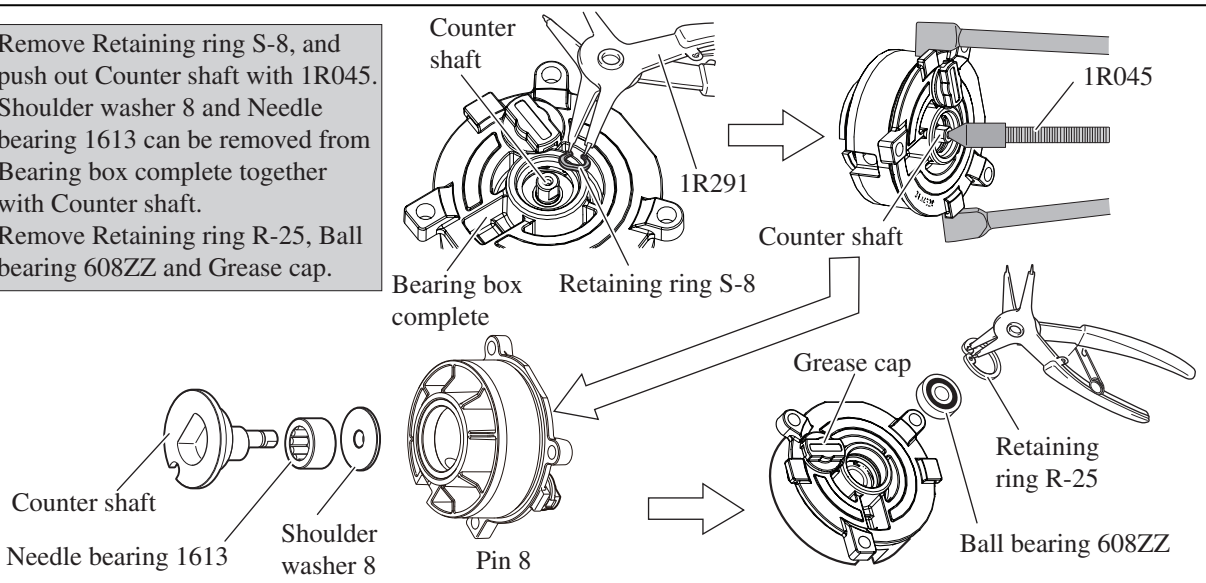


Fig. 22

Remove Retaining ring S-8, and push out Counter shaft with 1R045. Shoulder washer 8 and Needle bearing 1613 can be removed from Bearing box complete together with Counter shaft.
Remove Retaining ring R-25, Ball bearing 608ZZ and Grease cap.



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Crank housing section

DISASSEMBLING

Fig. 23

Filter case cover and Filter case (Re: **Fig. 20**) can be disassembled.

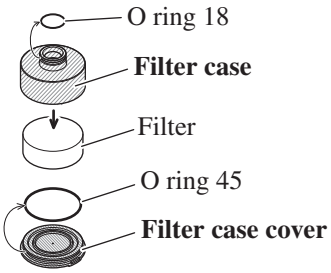
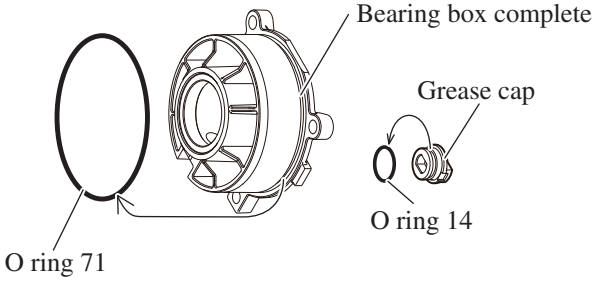


Fig. 24

O ring 72 and O ring 14 can be removed from Bearing box complete and Grease cap

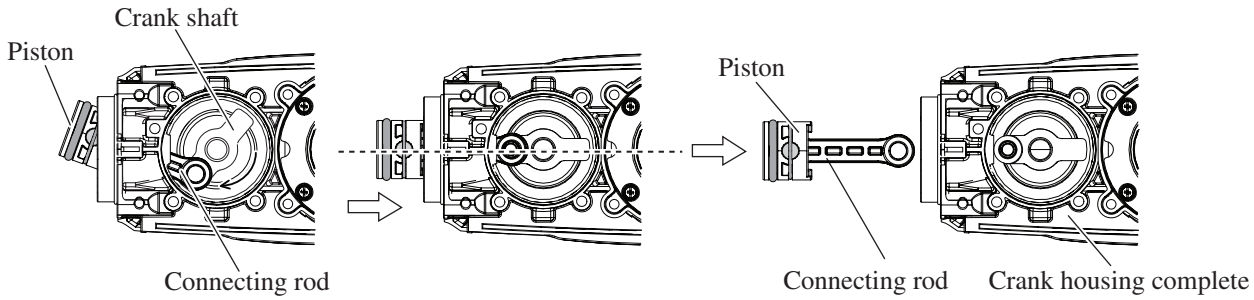


(6) In the step of **Fig. 21** (after removing Bearing box complete), Piston can be disassembled from Crank housing complete as illustrated in **Fig. 25**.

Fig. 25

Align Piston, Connecting rod and Crank shaft on their center line by turning Crank shaft, .

Piston can be removed from Crank housing complete together with Connecting rod.



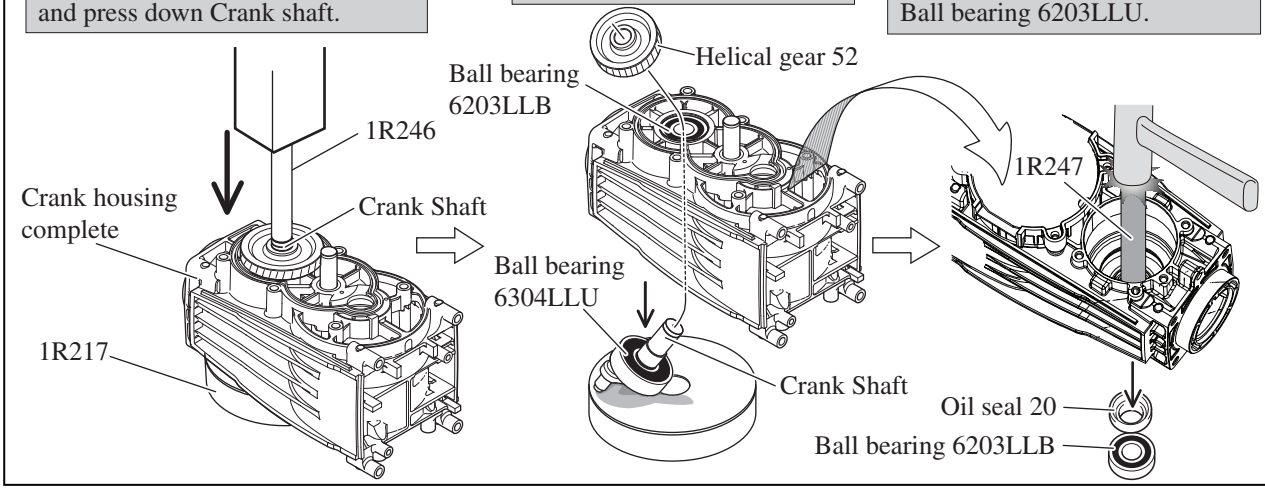
(7) Crank shaft section can be disassembled as illustrated in **Fig. 26**.

Fig. 26

To stabilize Crank housing during disassembly, put it onto 1R217. And apply 1R246 to Crank shaft and press down Crank shaft.

Helical gear 52 and Crank shaft section are disassembled as illustrated below.

Apply 1R247 to Ball bearing 6203LLU from Bearing box complete side, and press down Ball bearing 6203LLU.



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Crank housing section

ASSEMBLING

(1) Assemble Crank shaft with Ball bearing 6304LLU to Crank housing complete as illustrated in **Figs. 27** and 2**8**.

Fig. 27

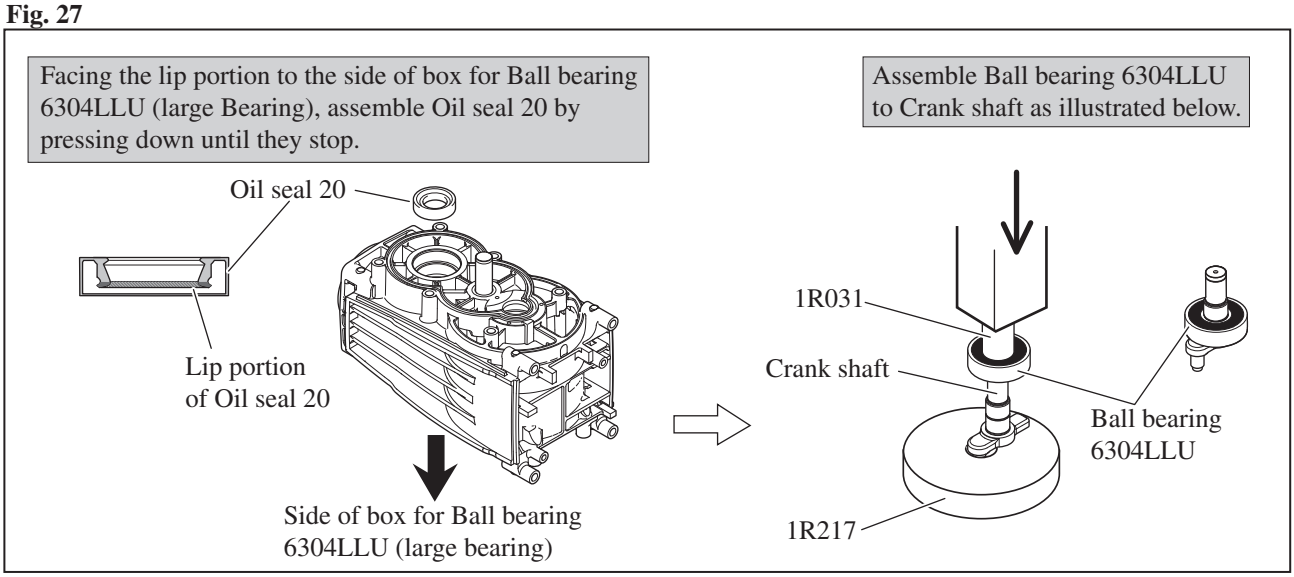
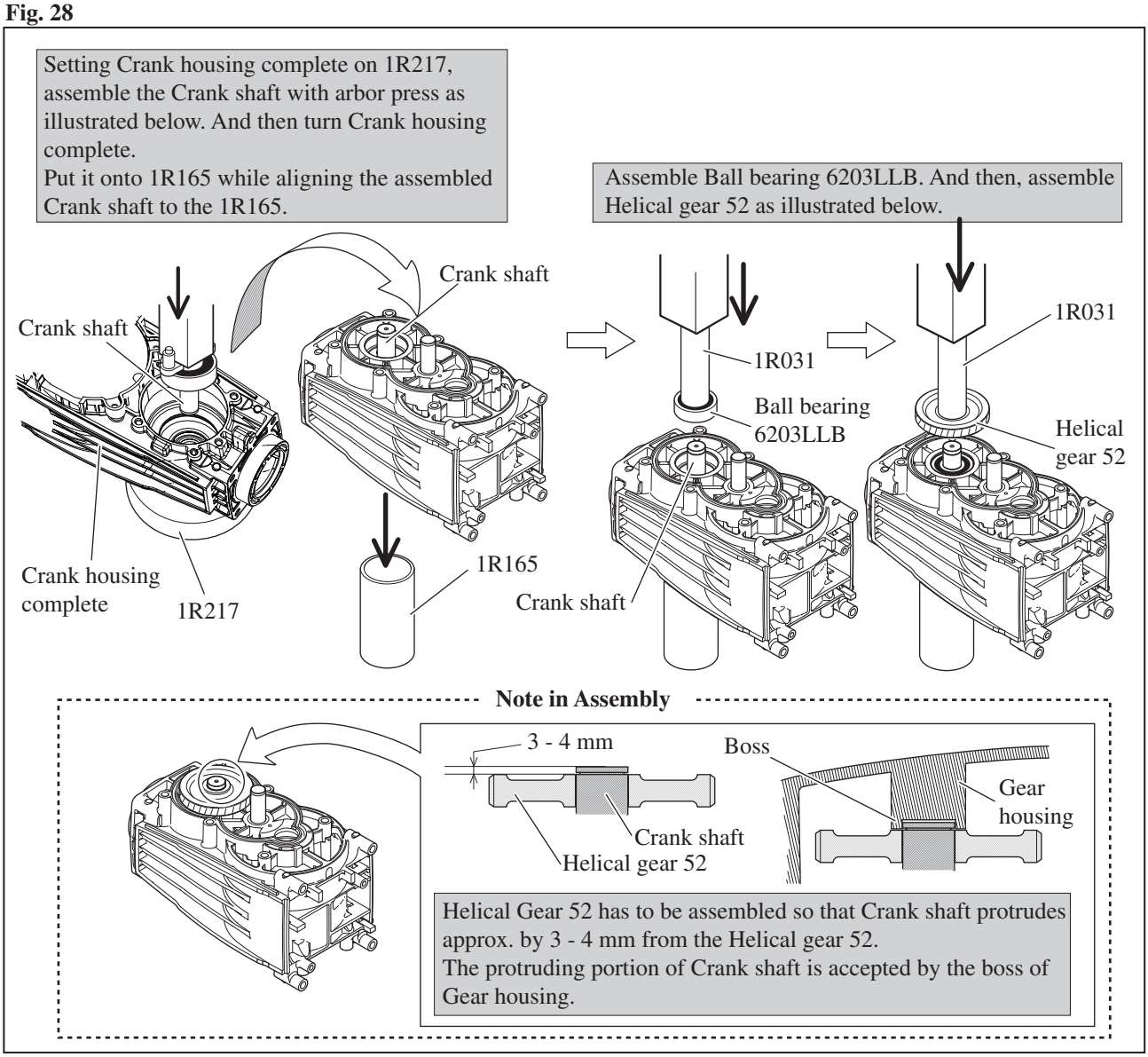


Fig. 28



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Crank housing section (cont.)

ASSEMBLING

(2) Assemble Piston together with Connecting rod to Crank shaft. Refer to **the right illustration in Fig. 25**.
(3) Assemble Bearing box complete as illustrated in **Figs. 29 to 31**.

Fig. 29

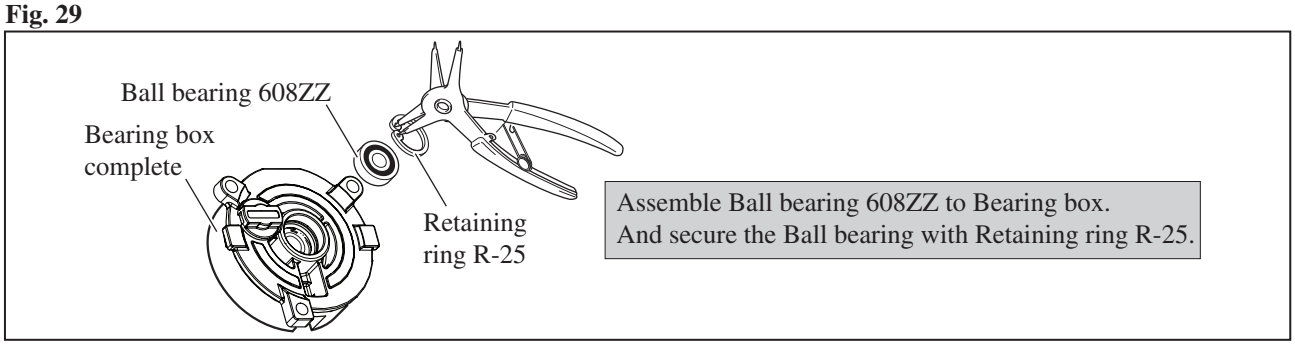


Fig. 30

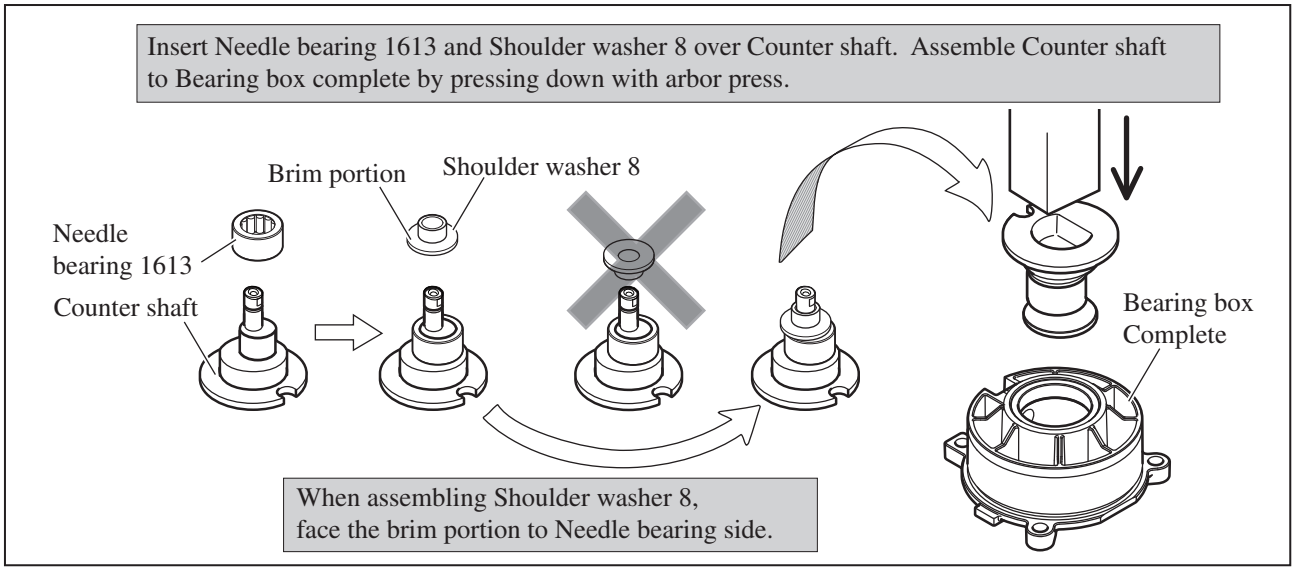
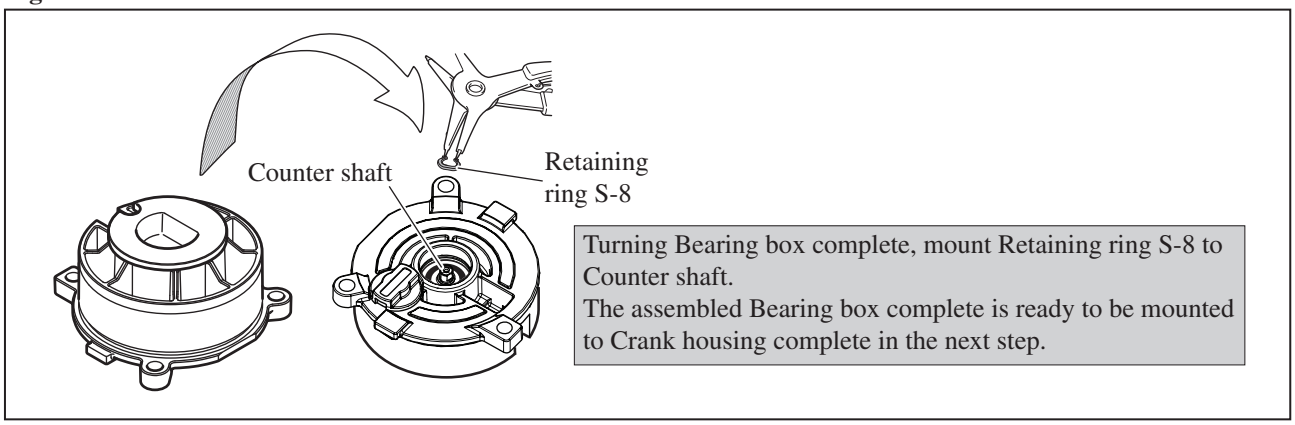


Fig. 31



Repair

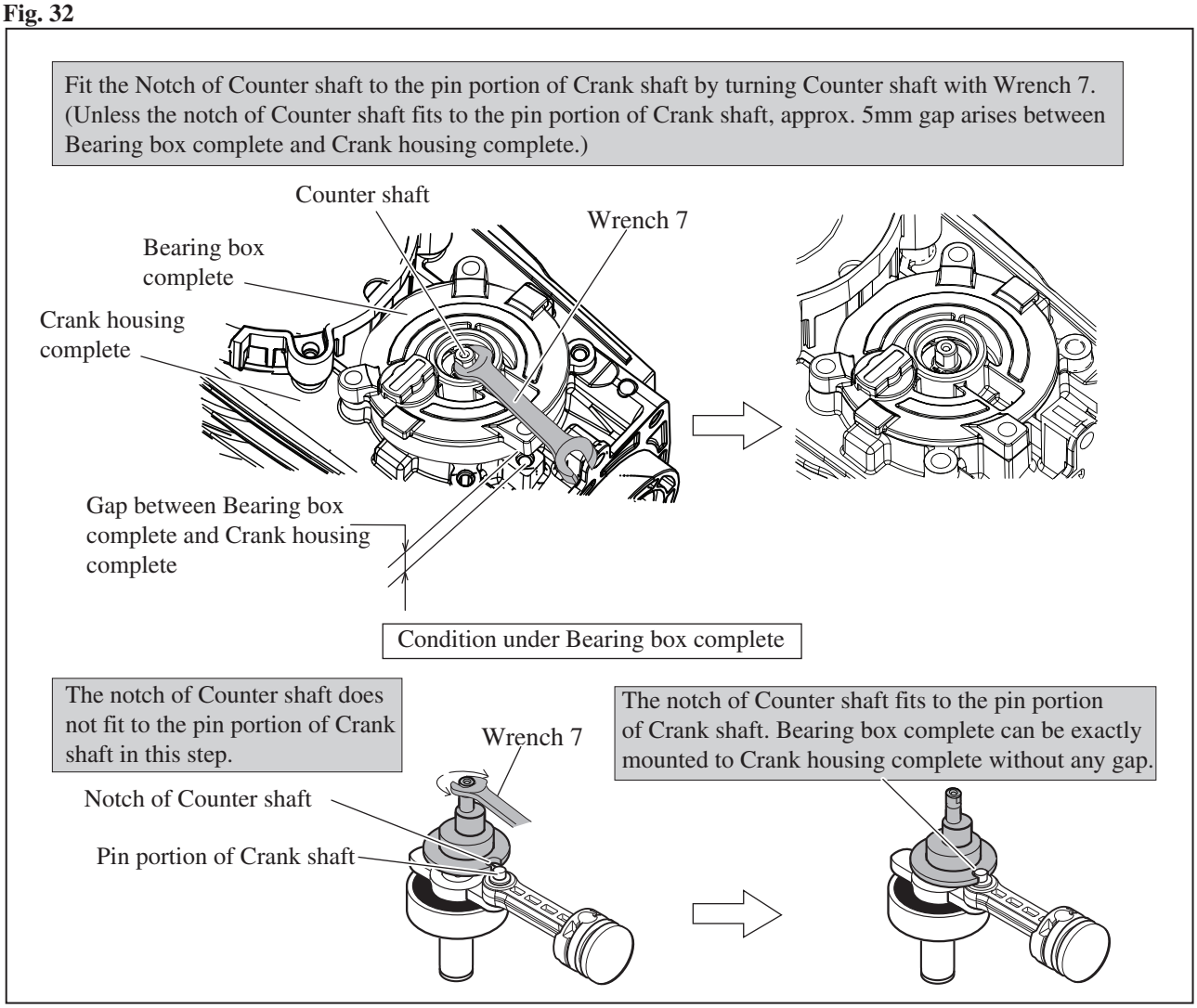
[3] DISASSEMBLY/ASSEMBLY

[3]-4. Bearing box section, Crank housing section (cont.)

ASSEMBLING

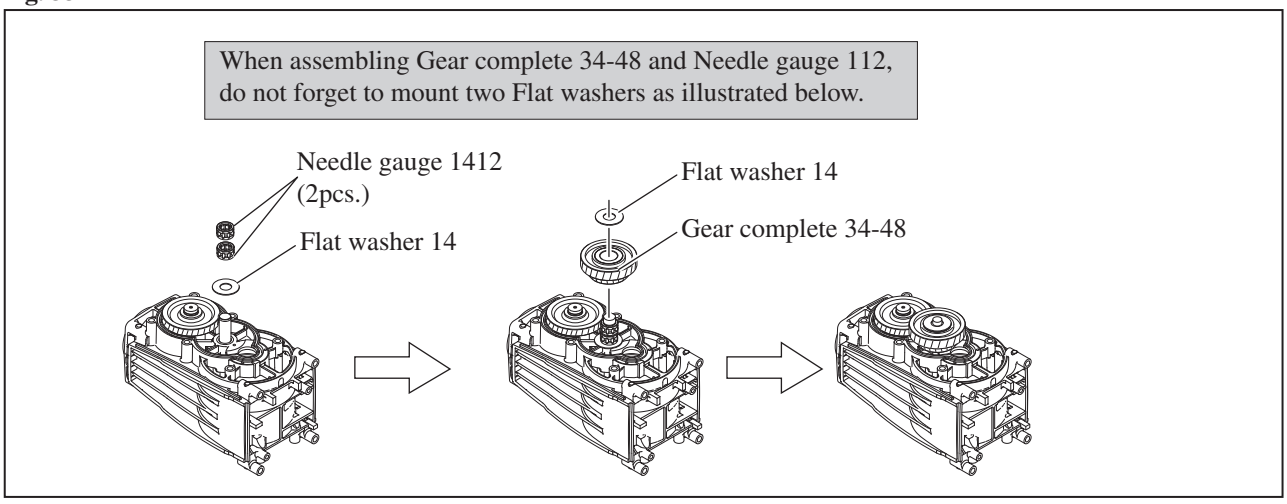
4) Mount Bearing box complete to Crank housing complete as illustrated in **Figs. 32**.

Fig. 32



5) Mount Gear complete 34-48 to Crank housing complete as illustrated in **Figs. 33**.

Fig. 33



(6) As for the further steps, do the reverse step of Disassembly.

► Repair

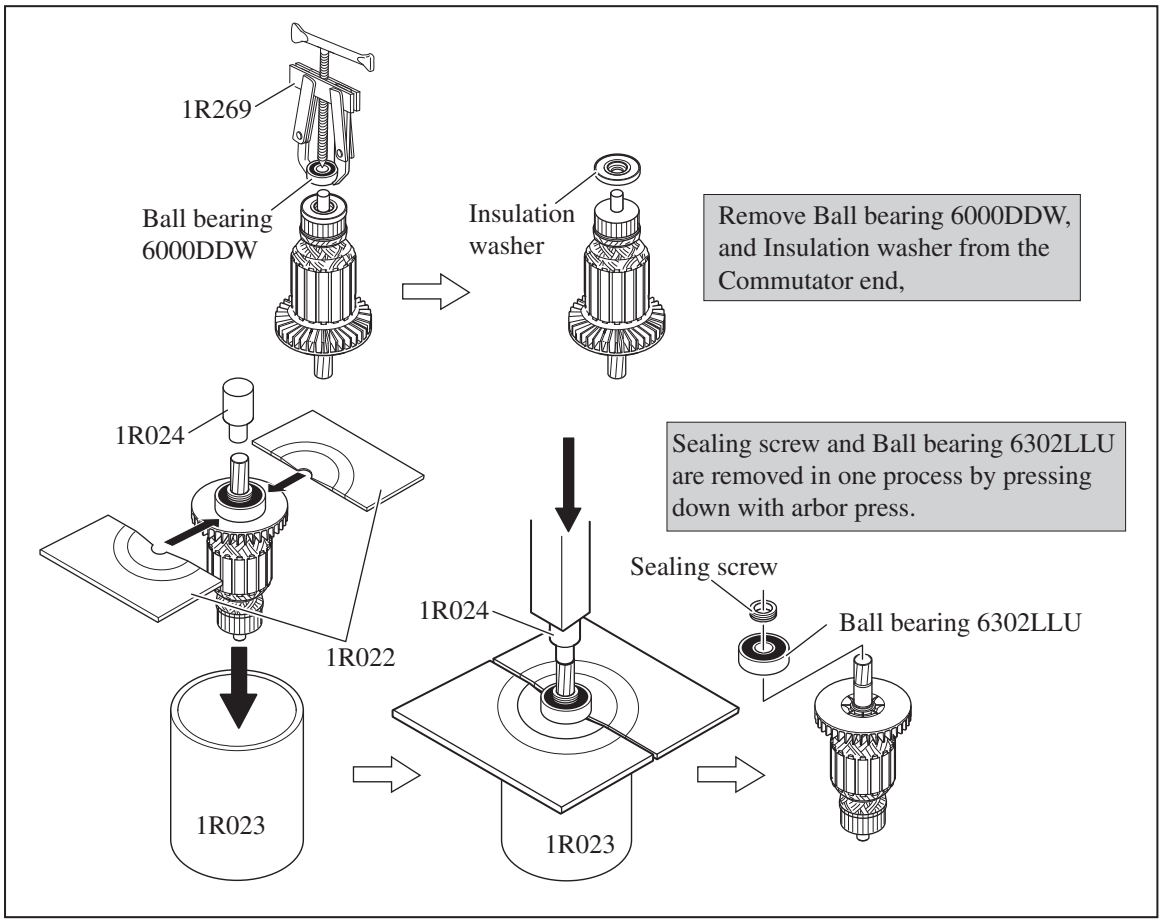
[3] DISASSEMBLY/ASSEMBLY

[3]-5. Motor section

DISASSEMBLING

(1) Remove Rear cover (with "AVT" mark) from Crank housing complete (Re: **the right illustration in Fig. 17**)
(2) Disconnecting Carbon brush from Armature's commutator, separate Motor housing from Crank housing complete. (**Fig. 18**)
(3) Disassemble Armature, by striking the edge of Crank housing complete. (**Fig. 19**)
(4) Ball bearings on Armature can be removed as illustrated in **Fig. 34**.

Fig. 34



ASSEMBLING

Do the reverse step of Disassembly.

Repair

[3] DISASSEMBLY/ASSEMBLY

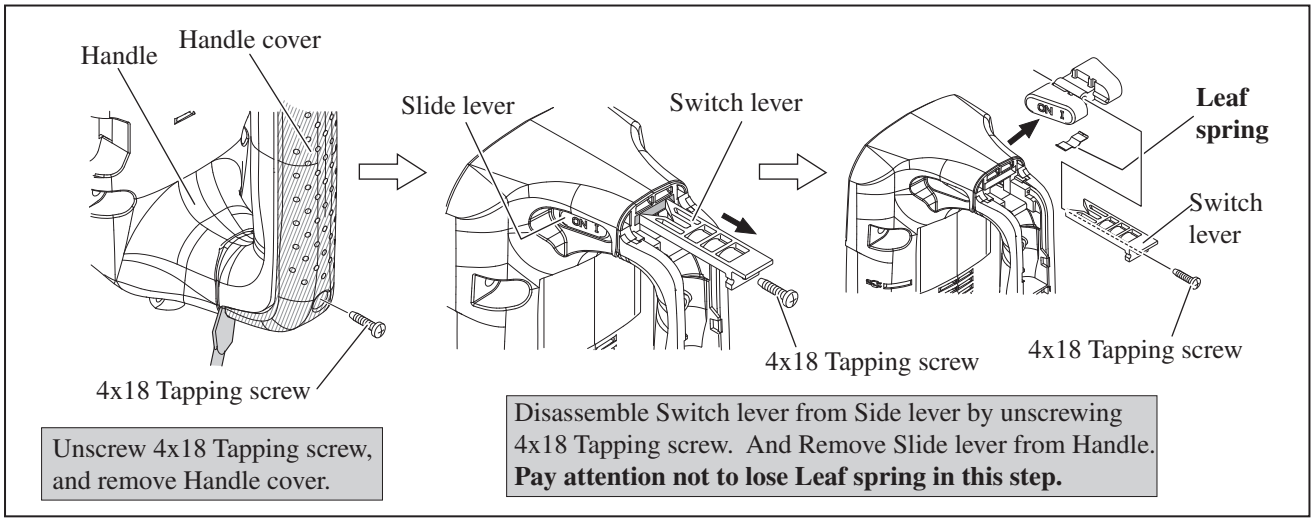
[3]-6. Electrical parts in Handle section

DISASSEMBLING

(1) Remove Handle section from Crank housing and Motor housing. The following electrical Parts can be replaced as illustrated in **Fig. 2**.
* Switch
* Controller
* Power supply cord

(2) Separate Handle cover from Handle. The parts for switching mechanism are disassembled as illustrated in **Fig. 35**.

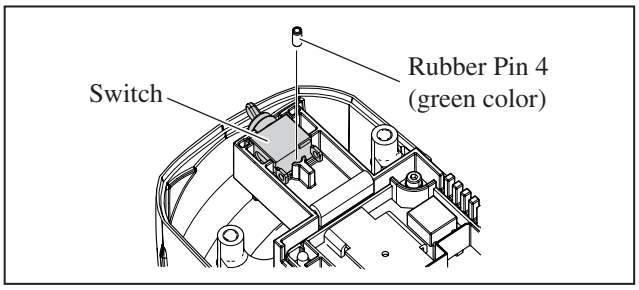
Fig. 35



ASSEMBLING

(1) When replacing Switch in the step of **Fig. 2**, do not forget to assemble Rubber pin 4 to the illustrated position in **Fig. 36**.

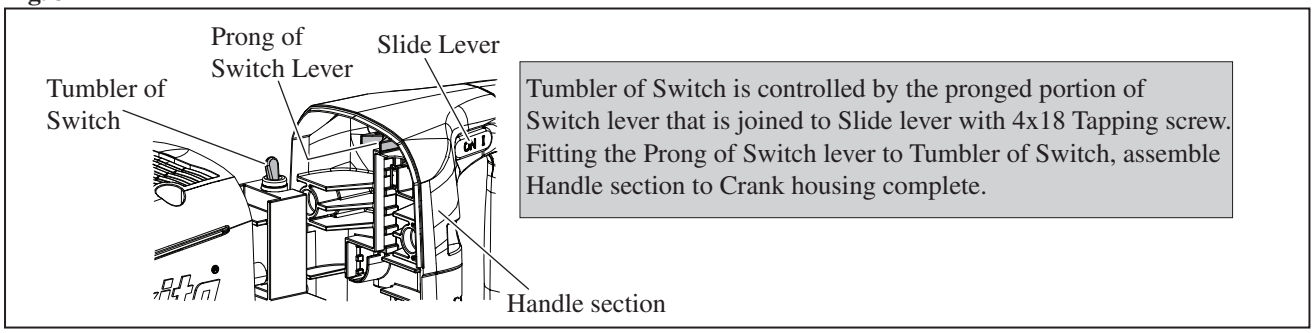
Fig. 36



(2) Mount Leaf spring to Slide lever, and assemble Slide lever to Handle. Fasten Switch lever to the Slide lever with 4x18 Tapping screw. And mount Handle cover to Handle. Refer to the illustrations in **Fig. 35**.

(3) Assemble the Handle section to Crank housing as illustrated in **Fig. 37**.

Fig. 37



Repair

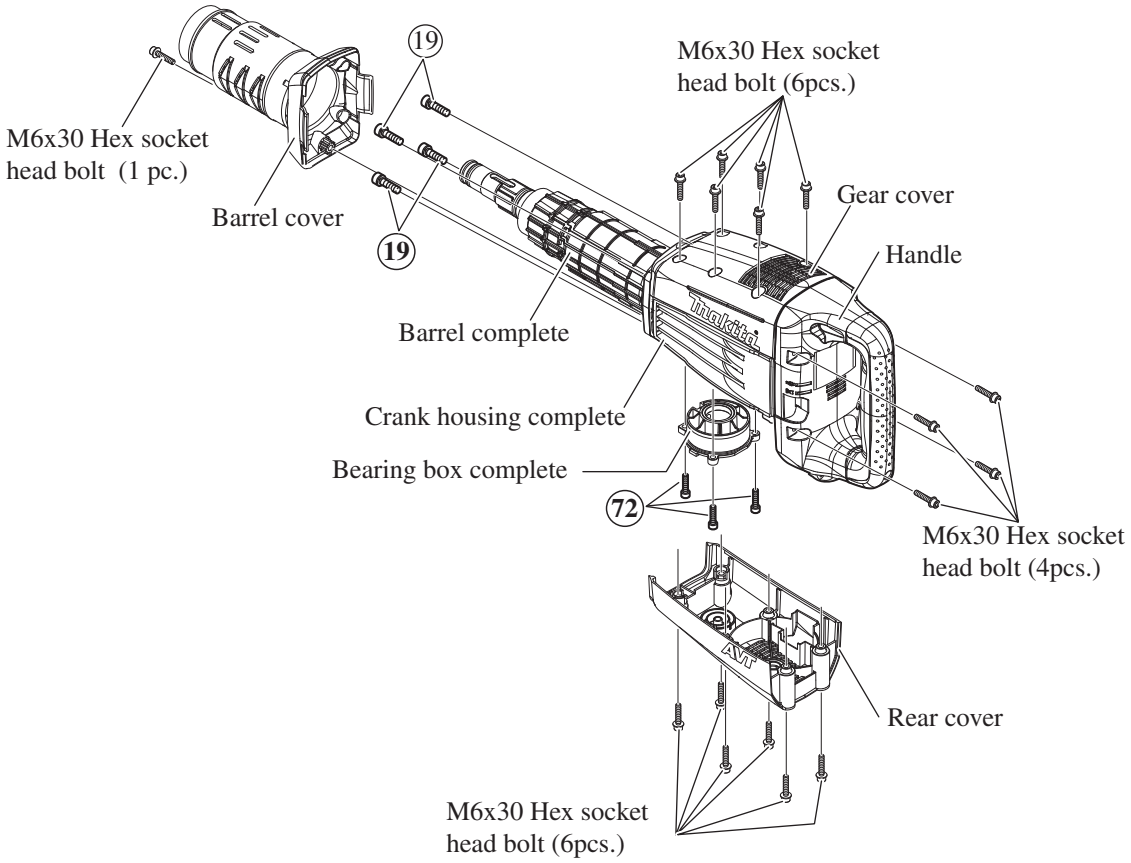
[3] DISASSEMBLY/ASSEMBLY

[3]-7. Fastening torque

Fasten the Bolts and Screws to the fastening torque listed in **Fig. 3**8.

Fig. 38

Position No.	Size of Hex Socket Head Bolt	Used Q'ty	**Fastening Torque**
(19)	M8 x 35	4	**30 - 40 N.m**
(72)	M6 x 25	3	**13 - 16 N.m**



<Note in Assembling>
Applying **ThreeBond 1342** or **Loctite 242** to their thread, tighten Hex socket head bolts illustrated above.

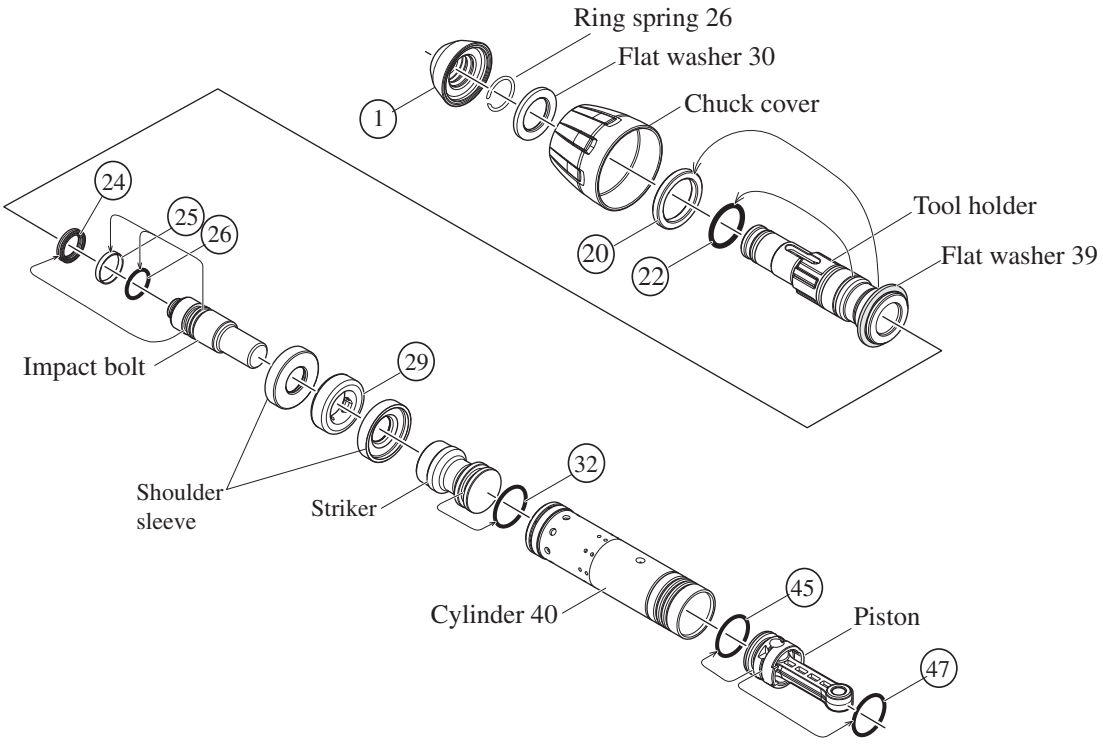
► Repair

[4] MAINTENANCE PROGRAM

When replacing carbon brush, it is recommended to replace the following parts at the same time for longer service life of the machine. Refer to **Fig. 39**.
Removing old grease, apply the new grease to the portions in **Figs. 1A to 1D of the clause of [2] LUBRICATIONS**.

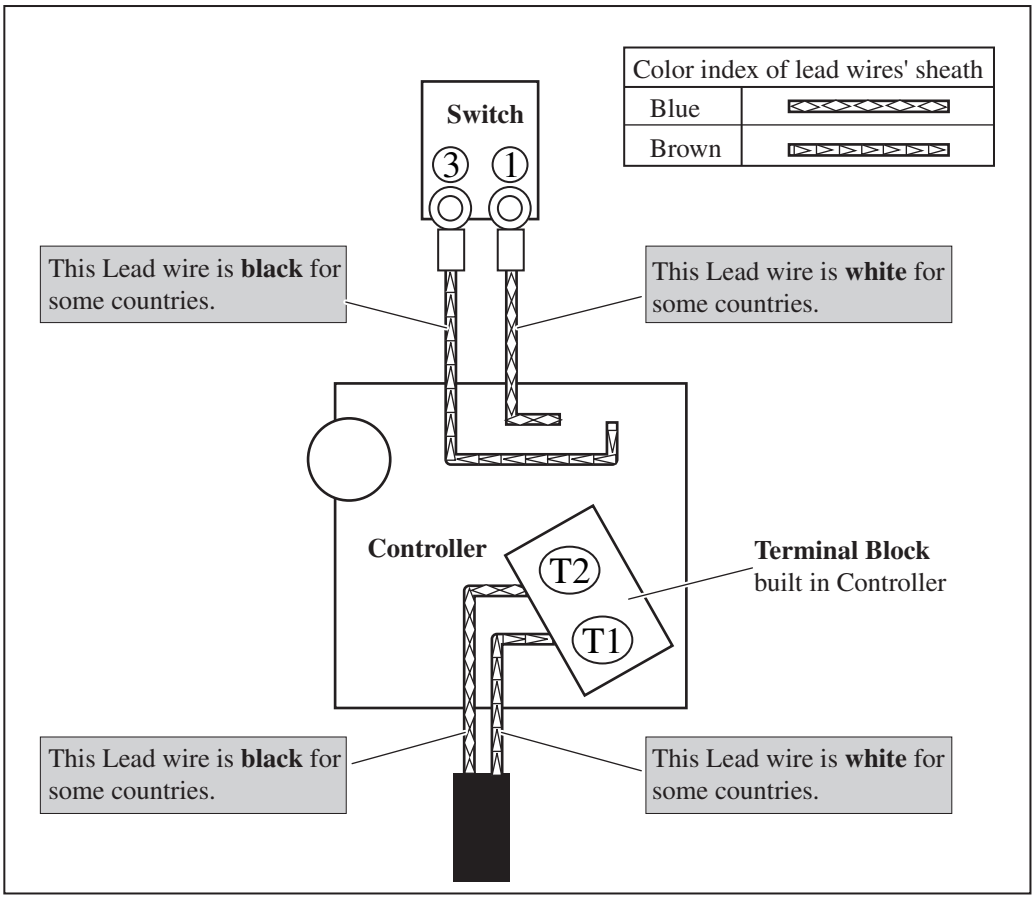
Fig. 39

Item No.	Descriptions	Item No.	Descriptions
①	Tool Holder Cap	㉖	O Ring 23 on Impact bolt
⑳	Rubber Ring 39	㉙	Rubber Ring 24
㉒	O Ring 35.5 on Tool holder	㉜	O Ring 31.5 on Striker
㉔	X Ring 21 on Impact bolt	㊺	O Ring 31.5 on Piston
㉕	Fluoride Ring 28 on Impact bolt	㊼	O Ring 35 on Piston



Circuit diagram

Fig. D-1



► Wiring diagram

Fig. D-2

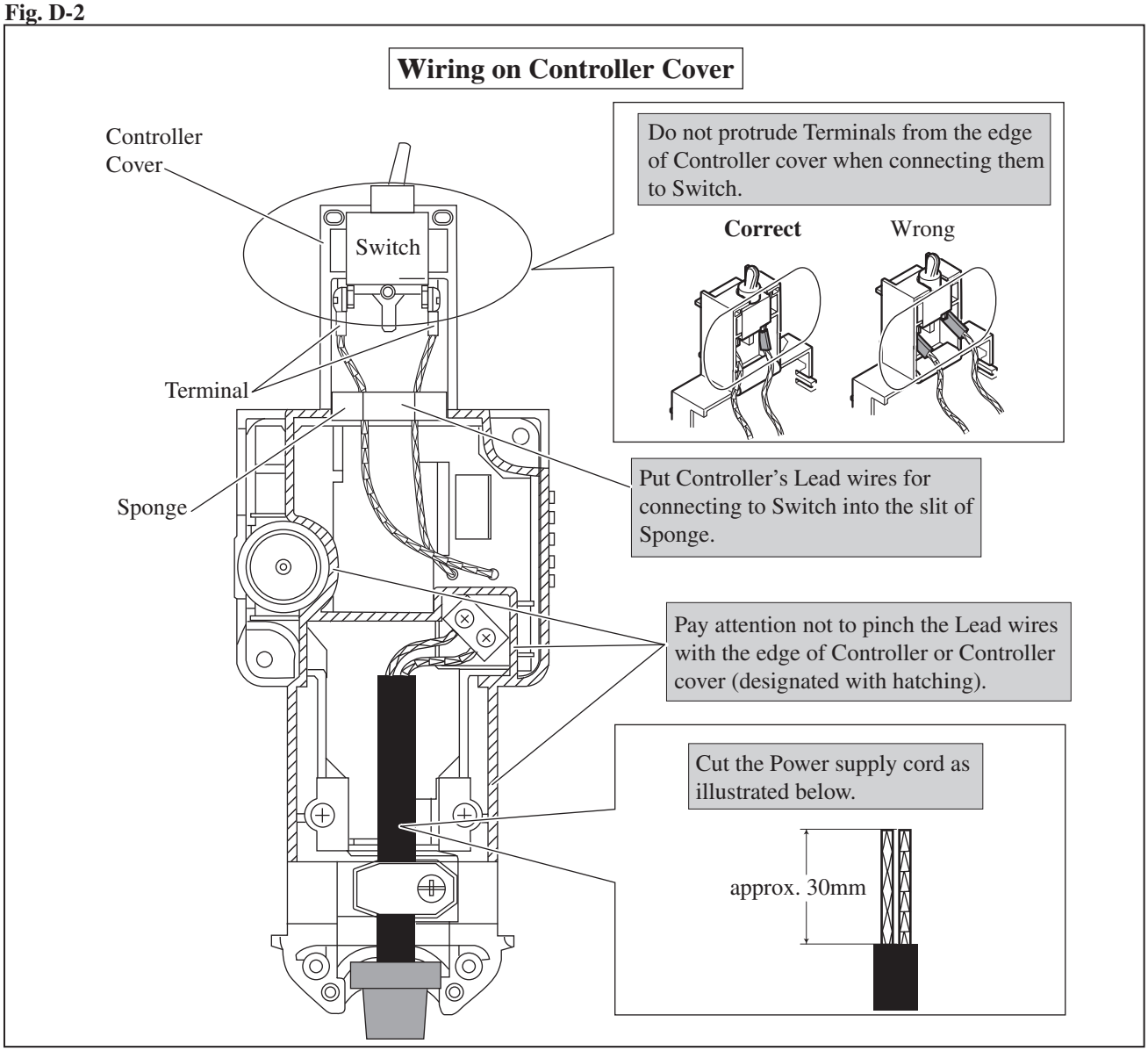


Fig. D-3